

Quadratic Functions

Standard form

$$y = ax^2 + bx + c$$

Vertex form

$$y = a(x-h)^2 + k$$

Intercept form

$$y = a(x-p)(x-q)$$

graphing Parabola

$$y = x^2 + 0x + 0$$

$$y = ax^2 + bx + c$$

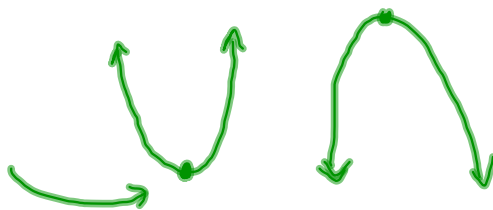
① identify a, b, c

$$a = 1$$

$$b = 0$$

$$c = 0$$

② Solve for the vertex



$$x = \frac{-b}{2a} = \frac{0}{2(1)} = 0$$

↑
x value of vertex

plug x in equation

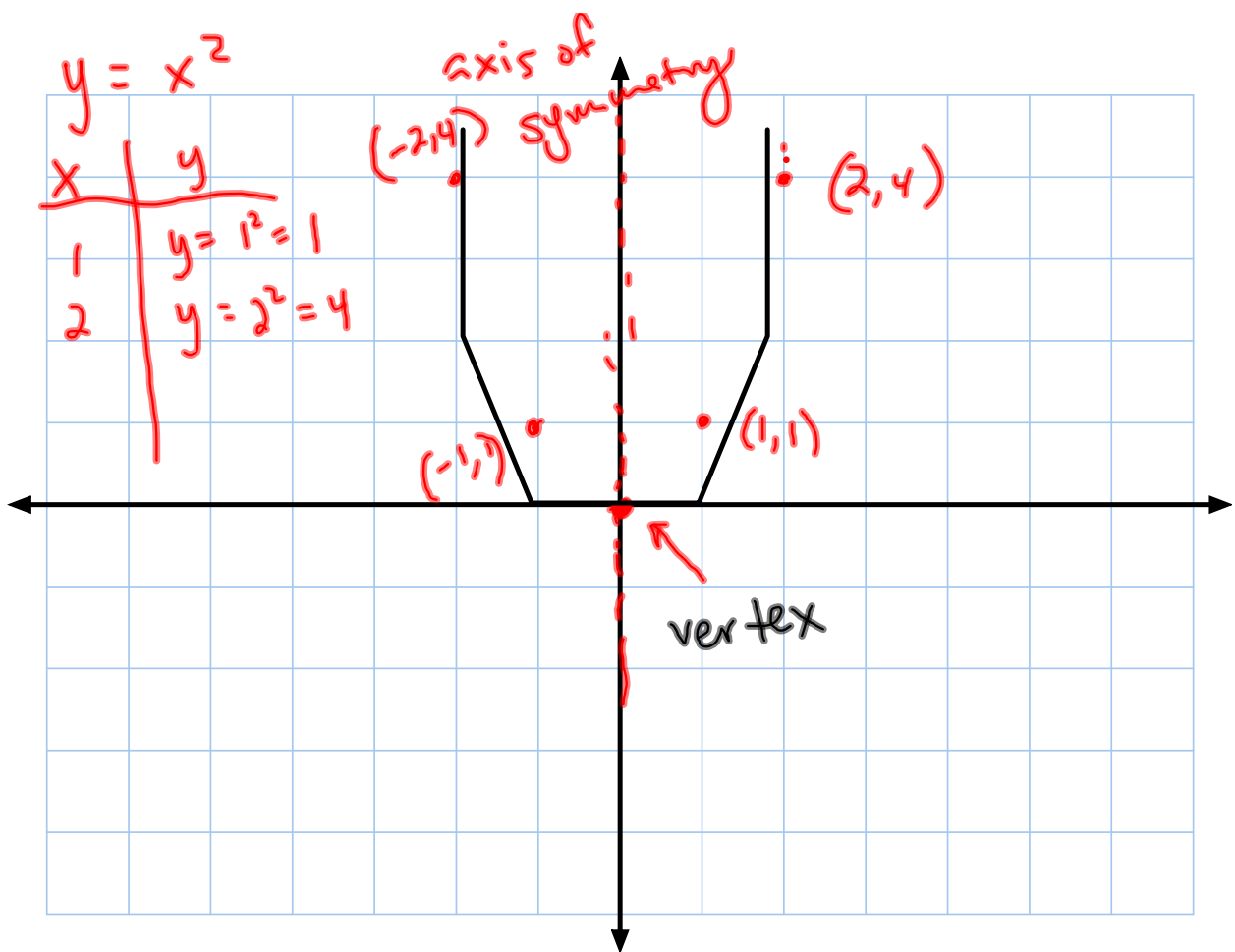
$$y = x^2 \quad y = (0)^2 = 0$$

Vertex = $(0, 0)$

③ Plot ^{vertex} on graph

④ pick pts ⁽²⁾ on one side of axis of symmetry

⑤ reflect pts ⁽²⁾ over axis of symmetry



$$y = ax^2 + bx + c$$

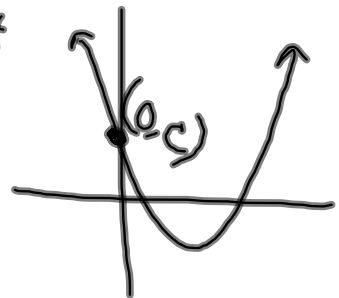


a : a is larger \rightarrow steeper 

a is negative \rightarrow points down



c : always the y -intercept



Graph $y = x^2$ $y = 2x^2 - 4x + 3$

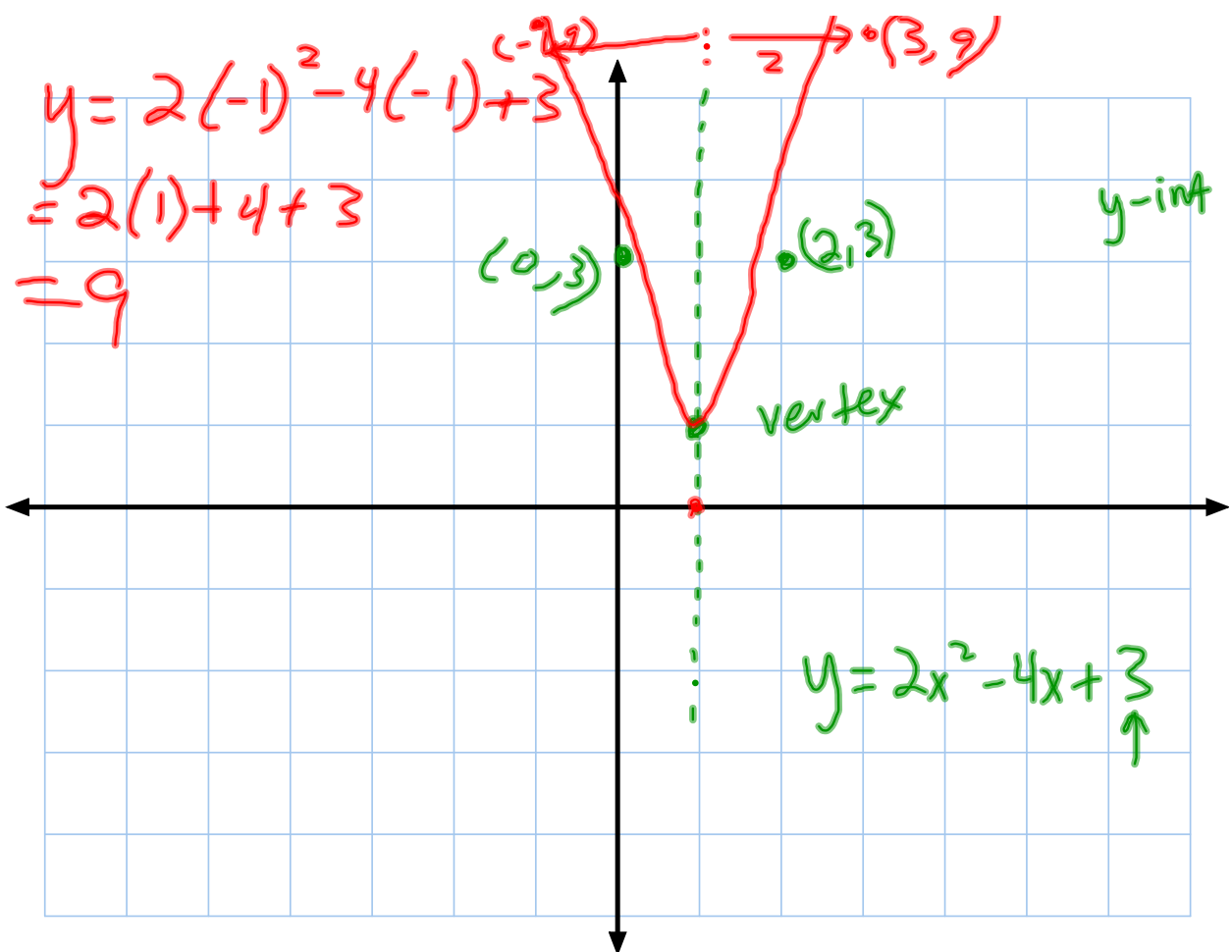
$$a=2 \quad b=-4 \quad c=3$$

$$x = \frac{-b}{2a} = \frac{4}{2(2)} = \frac{4}{4} = 1$$

$$= \frac{-(-4)}{2(2)} = \frac{4}{4}$$

vertex $(1, 1)$

$$\begin{aligned} y &= 2(1)^2 - 4(1) + 3 \\ &= 2 - 4 + 3 \\ &= 1 \end{aligned}$$



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- label axis of symm.
- vertex
- 2 pts on each
side of vertex